

How Stages Correlates with New Hampshire Mathematics and English Language Arts Curriculum Frameworks¹

Mathematics: End-of-Grade 3 (Primary) K-12 Broad Goals with K-3 Curriculum Standards

PROBLEM SOLVING AND REASONING

1a. Students will use problem-solving strategies to investigate and understand increasingly complex mathematical content.

- Solve problems using a variety of strategies (for example: make a list, draw a picture, or guess and check).
- Formulate and solve real-world problems.

Related Stages Assessment Activities:

Stage Five: **Math:** Charts and Graphs, Word Problems (+, -, x, ÷), Geometry, Fractions

Problem Solving: Number Guess, Mystery Shape, Mystery Person

Stage Six: **Explore:** Telling Time, Using Money

Assess: Telling Time, Counting Money, Money Equivalents

Stage Seven: **Making Sentences:** Writing Sentences

Making Stories

1b. Students will use mathematical reasoning.

- Use models, known facts, properties, and relationships to explain their thinking.

Related Stages Assessment Activities:

Stage Five: **Math:** Charts and Graphs, Word Problems (+, -, x, ÷), Geometry, Fractions

Problem Solving: Number Guess, Mystery Shape, Mystery Person

During the Assessment Activities, ask the learner to verbalize her thought process while solving problems. Make note of her response on the observation form.

¹ Information found in New Hampshire K-12 Mathematics and English Language Arts Curriculum Frameworks by the New Hampshire Department of Education. Source: <http://www.ed.state.nh.us/CurriculumFrameworks/> (Accessed February 15, 2002).

COMMUNICATION AND CONNECTIONS

2a. Students will communicate their understanding of mathematics

- Relate everyday language to mathematical language and symbols.

Related Stages Assessment Activities:

Stage Five: Math: Word Problems (+, -, x, ÷)

2b. Students will recognize, develop, and explore mathematical connections.

- Understand the mathematical processes of addition, subtraction, and multiplication and relate them to one another.
- Recognize different representations of concepts and procedures (for example, students should recognize the relationship among seven counters, seven tally marks, and the symbol 7).
- Translate among different representations as appropriate.
- Recognize and use mathematics in their daily lives.

Related Stages Assessment Activities:

Stage Four: Math Readiness: Number ID, Counting

Stage Five: Math: Charts and Graphs, Math Facts (+, -, x), Word Problems (+, -, x)

Stage Six: Explore: Telling Time, Using Money

Assess: Telling Time, Counting Money, Money Equivalents

NUMBERS, NUMERATION, OPERATIONS, AND NUMBER THEORY

3a. Students will develop number sense and an understanding of our numeration system.

- Compare any two 2-digit numbers to determine which is greater or less.

Related Stages Assessment Activities:

Stage Five: Problem Solving: Number Guess

3b. Students will understand the concepts of number operations.

- Relate the mathematical language and symbols to problem situations and informal language.
- Recognize the effect of performing the operations of addition, subtraction, multiplication, and division with whole numbers.

and

3c. Students will compute.

- Use a variety of mental computation and estimation techniques.

Related Stages Assessment Activities:

Stage Five: Math: Math Facts (+, -, x, ÷), Word Problems (+, -, x, ÷), Geometry

Problem Solving: Number Guess

GEOMETRY, MEASUREMENT, AND TRIGONOMETRY

4a. Students will name, describe, model, classify, and compare geometric shapes and their properties with an emphasis on the wide applicability in human activity.

- Name, [model], describe, and classify circles, rectangles, squares, triangles, [trapezoids, parallelograms, kites, and rhombuses (diamonds)].

Related Stages Assessment Activities:

Stage Four: Shapes: Explore and Assess

Stage Five: Problem Solving: Mystery Shape

4b. Students will develop spatial sense.

- Use position terms (for example: inside, outside, above, top-to-bottom, over, or under).

Related Stages Assessment Activities:

Stage Four: Math Readiness: Explore Compare, Spatial Relationships

Stage Five: Problem Solving: Mystery Person

4c. Students will develop an understanding of measurement and systems of measurement through experiences which enable them to use a variety of techniques, tools, and units of measurement to describe and analyze quantifiable phenomena.

- Investigate the attributes of length, area, [capacity], volume [and weight] using standard (metric and English) and nonstandard units of measure.
- Understand the attributes of time [and temperature].
- Relate measurement ideas to geometric ideas.
- Develop the concepts of perimeter and area.
- Develop an understanding of money.

Related Stages Assessment Activities:

Stage Five: *Math:* Geometry

Stage Six: *Explore:* Telling Time, Using Money

Assess: Telling Time, Money Names, Counting Money, Money Equivalents

DATA ANALYSIS, STATISTICS, AND PROBABILITY

5a. Students will use data analysis, statistics and probability to analyze given situations and the outcomes of experiments.

- [Collect, organize,] describe, and interpret data.

Related Stages Assessment Activities:

Stage Five: *Math:* Charts and Graphs

FUNCTIONS, RELATIONS AND ALGEBRA

6a. Students will recognize patterns and describe and represent relations and functions with tables, graphs, equations and rules, and analyze how a change in one element results in a change in another.

- Use concrete models to create a pattern, describe the pattern, and represent the pattern symbolically in a table.
- Recognize, describe, extend, and create a wide variety of patterns.
- Discover patterns or relationships from graphical representations.

Related Stages Assessment Activities:

Stage Four: *Math Readiness:* Explore Patterns, Continue/Fill-In Patterns, Create Patterns

Stage Five: *Math:* Geometry

DISCRETE MATHEMATICS

8a. Students will use a variety of tools from discrete mathematics to explore and model real-world situations.

- Use strategies in game situations.

Related Stages Assessment Activities:

Stage Five: Problem Solving: Number Guess, Tic-Tac-Toe

English Language Arts: End-of-Grade 3 (Primary) Standards with Level 1 (Grade K-4) Goals

READING

1. Students will demonstrate the interest and ability to read age-appropriate materials fluently, with understanding and appreciation.

- Determine the pronunciation and meaning of words by using phonics (matching letters and combinations of letters with sounds), semantics (language sense and meaning), syntactics (sentence structure), graphics, pictures, and context as well as knowledge of roots, prefixes, and suffixes.
- Understand and use the format and conventions of written language to help them read texts (for example, left to right, top to bottom, typeface).

Related Stages Assessment Activities:

Stage Four: Reading Readiness: Letter ID, Letter Sounds

Stage Five: Reading: Letters, Sounds, Meaning, Context

Stage Six: Stories: Cody, Mitchell, Meg, Adam, Ryan

Stage Seven: Making Words: High Frequency Words, Rhyming Words

WRITING

2. Students will demonstrate the interest and ability to write effective for a variety of purposes and audiences.

- Use their knowledge and experiences to generate ideas for writing both on assigned topics and on topics they choose.
- Prepare a written draft to frame and try out ideas.
- Demonstrate an understanding that editing written works for the conventions of standard English, sentence structure (grammar), and wording helps improve communication.
- Edit writing for spelling, punctuation, grammar, usage, and capitalization.

Related Stages Assessment Activities:

Stage Seven: Making Sentences: Writing Sentences, Spelling and Grammar

Making Stories

SPEAKING, LISTENING, AND VIEWING

3. Students will demonstrate the interest and ability to [speak purposefully and articulately, as well as] listen and view attentively and critically.

- Understand the characteristic sounds and rhythms of the English language including letter-sound relationships, rhythm, rhyme, word order, patterns, and alliteration.
- Listen effectively to spoken and audio-visual messages including stories, factual presentations, and directions.

Related Stages Assessment Activities:

There are many opportunities to observe the learner's ability to listen, both to introductory presentation of concepts and to spoken directions.

Stage Two: Activities in Stage Two include short audio clips describing object attributes or short original rhymes with illustrations.

Stage Three: Activities in Stage Three review information similar to those in Stage Two activities. The learner then demonstrates understanding by choosing an answer using an appropriate input device.

Stage Four: *Reading Readiness:* Explore and Assess Letter Sounds

Stage Five: *Reading:* Sounds

Math: Explore Charts and Graphs, Explore Math Facts, Explore Word Problems, Explore Geometry, Explore Fractions

Problem Solving: Number Guess, Letter Scramble, Making Words, Tic-Tac-Toe, Mystery Practice

Stage Six: *Stories:* Cody, Mitchell, Meg, Adam, Ryan

Explore: Telling Time, Using Money, Getting Dressed, Looking at Signs, Using Objects

Stage Seven: *Making Sentences:* Spelling and Grammar, Writing Sentences

ENGLISH LANGUAGE USES

5. Students will demonstrate competence in using the interactive language processes of reading, writing, speaking, listening, and viewing, to gather and organize information in a variety of subject areas.

- Use context clues to determine the meaning of words.

Related Stages Assessment Activities:

Stage Five: *Reading:* Sounds, Meaning, Context

Stage Six: *Stories:* Cody, Mitchell, Meg, Adam, Ryan

Stage Seven: *Making Words:* High Frequency Words, Rhyming Words